A NEW GENUS AND SPECIES OF CARVENTINAE (HEXAPODA : HEMIPTERA : ARADIDAE) FROM NORTHLAND, NEW ZEALAND

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Abstract. Modicarventus wisei gen. et sp.n. from the Mangonui district of Northland, is described and figured. This new genus of Carventinae shares several features with *Neocarventus* Usinger & Matsuda. A key to the genera of the New Zealand Carventinae is included.

The localities of specimens described here are in the isolated north-eastern tip of the North Island towards North Cape (Mangonui County).

Specimens are in the collections of the Auckland Museum (AMNZ).

Family ARADIDAE

Subfamily CARVENTINAE (Usinger, 1950)

KEY TO THE GENERA OF NEW ZEALAND CARVENTINAE

1. Rostrum arising from an open atrium (group I) ..... **Acaraptera** U. & M.
   Rostrum arising from a closed atrium (group II) 2
2. First and second abdominal tergites completely fused with metanotum and with mesonotum at middle..... **Leuraptera** U. & M.
   First and second abdominal tergites separated from metanotum by a distinct suture 3
3. Medial region of mesonotum produced as a distinct large hexagonal prominence, merging into the metanotum. Sutures between thoracic segments very deep..... **Clavaptera** Kirman
   Medial region of mesonotum produced backwards into the metanotum as a well defined posteriorly directed broad or angular lobe. Thoracic sutures distinct but not deep..... 4
4. Head with well developed, laterally directed, blunt post-ocular spines ..... **Carventaptera** U. & M.
   Head without postocular spines..... 5
5. Mesothoracic median lobe broad, occupying medial one third of the posterior margin of metanotum. Tergal disc with all sclerites distinct (4 lateral, 4 sublateral, and a longitudinal medial sclerite bearing scent glands ..... **Modicarventus** gen.n.

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Mesothoracic median lobe subtriangular forming a wedge-like division of the metanotum. Tergal disc with sublateral sclerites fused medially with medial longitudinal sclerite .....**Neocarventus** U. & M.

Kormilev's (1970) key for the genera of the Carventinae is now out of date as regards New Zealand. I propose the following modification. My key from couplet 2 can be inserted at couplet 19 of Kormilev's key.

The genus *Clavaptera* was described by Kirman (1985).

Genus **Modicarventus** gen.n.

Apterous. Elongate oval in body form, surface with a thin pale incrustation, particularly extensive on the head; thoracic sutures; and connexival segments.

Head wider than long; eyes small; anterior process prominent, the clypeus narrowing apically, with thick genae exceeding apex and forming a small cleft. Antenniferous tubercles short, blunt, conical. Postocular region of head not exceeding lateral margin of eyes; neck constricted. Antennae longer than head but not excessively long; first segment exceeding apex of head by half its length, fourth segment longest, second segment shortest, third segment shorter than first or fourth. Rostrum slender, especially near base, arising from a closed atrium well behind apex of clypeus.

Pronotum distinctly shorter than head; collar dorsally distinct, ring-like, with lateral tubercles, with a ring-like depression behind; a posteriorly directed subtriangular sclerite behind collar: hind margins roundly produced posteriorly; anterior margin subcontiguous with tubercles on collar, slightly anteriorly directed in female; anterior angles rounded in male, obtuse in female; lateral margins widening posteriorly (more strongly in female) and produced as acute lobes.

Mesonotum longer than pronotum at middle, produced prominently backward into a broad subrectangular lobe reaching the anterior margin of the basal abdominal segments and occupying the median third of the metanotum; anterior margin incised posteriorly forming an anteriorly directed median lobe; lateral margins widening posteriorly (more strongly in female) and produced as rounded lobes in male and acute lobes in female.

Metanotum divided into two by the mesanotal lobe, lateral margins widening posteriorly (more strongly in the female), posterior angles rounded.

Basal abdominal tergites fused medially, strongly elevated anteriorly, with a distinct medial longitudinal groove, narrowing posteriorly, almost reaching anterior margin, posteriorly with a short median longitudinal carina or elongate tubercle; at either side weak transverse carinae separating first and second segments; posterolateral angles with a subrectangular sclerite. Abdominal disc distinct and moderately elevated at middle, dorsal scent glands borne on a single longitudinal plate with distinct anterior dorsal abdominal scent gland opening displaced posteriorly, median and posterior scent gland openings progressively reduced but discernible; sublateral tergal plates of segment III divided by a distinct medial longitudinal suture, sublateral and lateral tergal plates all separated by distinct sutures. Connexivum slightly reflexed; connexival segments subquadrate at middle but with acute

posterolateral lobes increasing in size from third to fifth segments in male, the plates of second and third segments fused; spiracles on second, third and fourth segments ventral, remainder lateral. Pattern of glabrous areas distinct, conforming to the 2:1:1 type of Usinger & Matsuda (1959).

Undersurface smooth and polished on thorax and abdomen, without punctures or granules; collar distinct, pro-, meso-, and metasterna completely fused; metasternum and first visible abdominal ventrite fused, but suture discernible, other abdominal segments with distinct sutures. Legs with distinct glabrous trochanters, surface of legs granular, pretarsi with distinct pullvilli and parempodia (Goel & Schaefer 1969). Pattern of glabrous areas 2:2:1.

Male terminalia. Seventh abdominal tergite strongly elevated at middle. Eighth segment lobes distinctly angulate posteriorly, short, not nearly reaching apex of genital capsule, slightly angularly produced upwards and inwards. Pygophore enormously developed, produced dorsoposteriorly into two very large diverging subconical lobes with deep depression between, large median lobe directed ventrally.

Female terminalia. Seventh ventral segment a bilobed plate, each plate strongly obliquely carinate, about four and a half times as long as preceeding segment at middle. Eighth segment fully exposed across its width above, with lateral lobes not reaching tip of ninth segment, spiracles laterally positioned.

TYPE SPECIES. *Modicarventus wisei* sp.n.

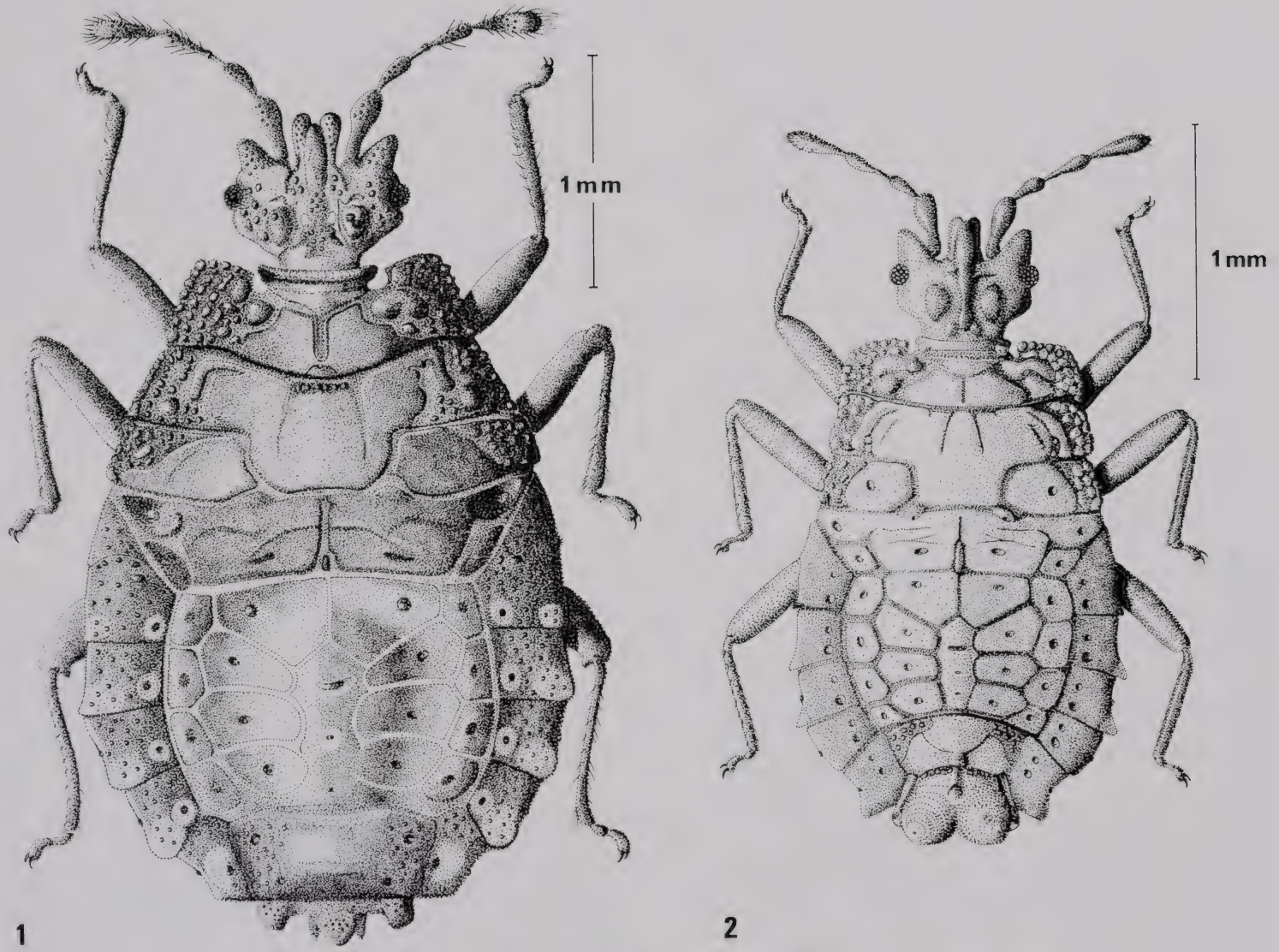
Derivation. Modi(cus), Lat = modest, + *Carventus.*

Modicarventus wisei sp.n. (Figs. 1-6)

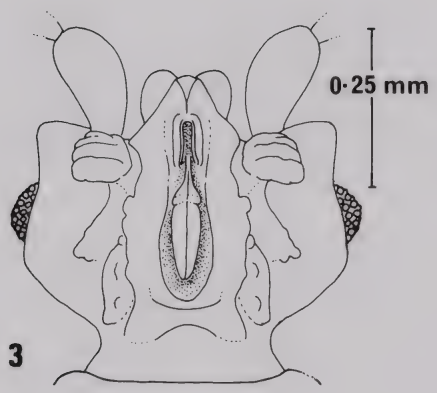
Apterous.

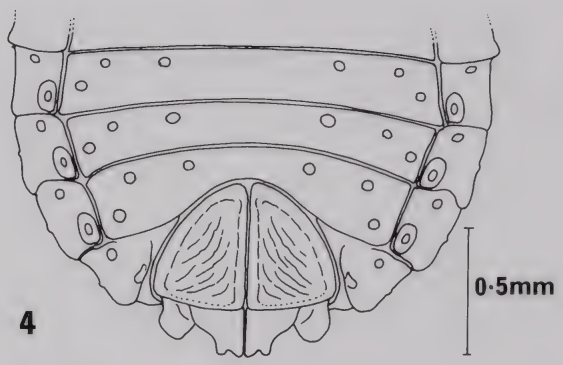
Head. Wider across eyes than long (male 0.60 : 0.47 mm, female 0.70 : 0.57 mm); anterior process reaching middle of first antennal segment; genae rounded at apices, extending beyond apex of clypeus, forming a narrow notch in front of the latter, finely granulate; antenniferous tubercles short, thick, outer margins subparallel in male, slightly divergent in female, finely granulate; postocular lateral margins of head subparallel then regularly narrowed to a constricted collar; pair of large laevigate suboval tubercles between median longitudinal ridge and postocular margins of head. Antennae about 1½ X as long as head, granulate, relative length of first to fourth segments 0.22 : 0.15 : 0.22 : 0.27 mm in male, 0.27 : 0.17 : 0.26 : 0.30 mm in female, first segment narrowed at basal one third, not granulate, then thickened anteriorly, apex rounded; second segment slightly curved at base, gradually thickened anteriorly, apex rounded; third segment pedunculate at base, then gradually thickened anteriorly, apex rounded, sparsely pubescent; fourth segment fusiform, sparsely pubescent. Rostral atrium with narrow slit. Rostrum short not reaching posterior margin of head, rostral groove widened at middle, glabrous on either side of groove (Fig. 3).

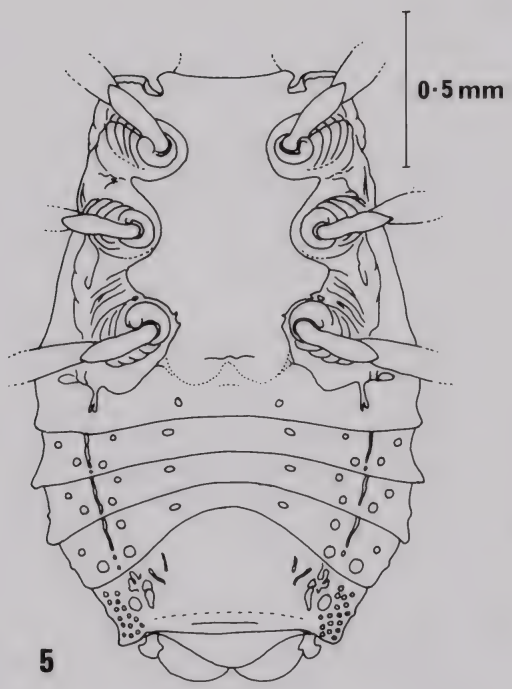
Thorax. Pronotum about 3 X as wide at base as long at middle including collar, (male 0.95 : 0.32 mm, female 1.15 : 0.37 mm), collar distinct, glabrous, ring-like, anterior margin curved slightly forward laterally, lateral extremities with a small tubercle, ring-like depression behind collar, posteriorly directed triangular plate immediately behind post-collar depression: anterior margin behind collar roundly incised then produced

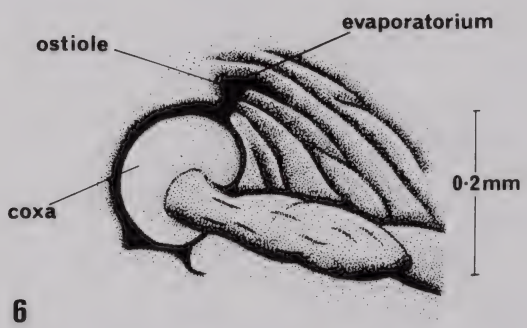


Figs. 1,2. *Modicarventus wisei* sp.n. 1. Female holotype. Dorsal. 2. Male allotype. Dorsal.









Figs. 3-6. *Modicarventus wisei* sp.n. 3. Male allotype. Head, ventral. 4. Female holotype. Terminalia, ventral. 5. Male allotype. Ventral. 6. Male. Metasternal scent gland.

anteriorly, anterolateral angles rounded, obtuse; lateral margins feebly convex; posterior margin sinuate, broadly produced posteriorly at middle: upper surface laevigate, glabrous on area surrounding median longitudinal groove, area lateral of collar with series of round granules extending from anterior to posterior margin: anterior, lateral, and posterior margins depressed and granulate, posterior suture distinct.

Mesonotum about 3 X broader than long (male 1.07 : 0.37 mm, female 1.37 : 0.45 mm); upper surface mostly a medially elevated glabrous plate, posteriorly produced into a subrectangular lobe reaching to basal abdominal tergites, occupying medial third of metanotum, anterior margin of this plate narrowly incised posteriorly forming an anteriorly directed medial lobe in male, lobe broader and with a granular anterior margin in female, plate extending laterally to occupy all but submarginal lateral area, lateral extremities of plate with broad anterior incisions from posterior margin; sublateral area with granules continuous with those of prothorax; lateral margins straight, granulate, posteriorly widened; posterior margin granulate, straight until contact with medial posterior lobe, then turning posteriorly to follow lobe margin; posterior suture distinct.

Metanotum divided into two segments by mesonotal lobe which occupies medial third; lateral margins rounded, granulate; inner portion of each segment with glabrous laevigate plate extending from near posterolateral angles to mid-point of anterior margin, outer portion with granules continuous with posterior margin of mesonotal lobe.

Abdomen. Widened at middle, relative width at posterior angles of third to sixth connexival segments 1.22 : 1.25 : 1.20 : 0.85 mm in male, 1.77 : 1.80 : 1.70 : 1.37 mm in female. First and second tergal segments fused, strongly elevated anteriorly, medial longitudinal depression extending from posterior margin almost to anterior margin, a straight longitudinal carina in posterior half of this depression in male, and a small elongate tubercle in near posterior margin in female: anterior margin broadly sinuate; extremities produced anteriorly, separating thoracic from connexival segments; posterior margin well defined from succeding segments by an anteriorly curved suture: upper surface with transverse ridges at either side of medial depression indicative of original segmentation, sclerite within posterolateral angle subcontiguous with lateral tergal disc sclerites. Tergal disc glabrous, medially elevated, anterior margin straight lateral margins rounded, posterior margin curved anteriorly; lateral markings distinct on segments III to VI, subrectangular, with central depressed oval spots; sublateral markings clearly separated from lateral markings, each with central depressed oval spots; median longitudinal axis bearing scent gland openings a single fused plate, anteriorly angularly produced, laterally rounded indented coincedently with sublateral markings of segments IV to VI; first reduced gland placed between sublateral patterns of segment IV, second and third glands vestigial placed between sublateral patterns of segments V and VI respectively. Connexivum granulate, not conforming to curvature of tergal disc, second and third segments fused, but suture line discernible in female, subsequent segments subrectangular, each with a pair of laevigate round tubercles, of which the posterior one is always the larger; in male posterior angles of third to fifth segments with angular lateral projections, sixth with no lateral projection; in female posterior angle of third segment with no lateral projection, fourth to sixth segments with lateral rounded lobes. Spiracles ventral on segments II, III, and IV, lateral on segments V, VI, and VII.

Male terminalia. Seventh tergal abdominal segment strongly elevated posteriorly to a medial tubercle, glabrous apart from subtriangular granulate areas in anterolateral angles. Seventh connexival segment with acute posterolaterally directed lobe behind spiracle. Ventrally seventh segment a broad glabrous plate about 5 X longer than preceeding segment at middle, laterally fused to connexival segment, sutures indistinct, connexival region strongly granulate, posterior margin with transverse carinae. Eighth segment lobes short, not reaching posterior margin of ninth segment, angularly produced upwards and inwards. Ninth segment large, broad, conspicuously divided into two divergent dorsoposteriorly directed subconical lobes with deep depression between, a broad rounded median lobe produced ventrally.

Female terminalia. Seventh tergal abdominal segment subrectangular but narrowing posteriorly, anterior margin sinuate, lateral and posterior margins straight, granules and callosities along lateral and posterior margins, median elevated area glabrous. Seventh connexival segment with posterior margin straight, conforming with seventh tergal segment, posterior angles obtuse. Ventrally seventh segment a bilobed plate strongly obliquely carinate, about 4½ X as long as preceeding segment at middle. Eighth segment conspicuously exposed across its width above, lateral lobes not reaching apex of ninth segment, spiracle on outer margin. Ninth segment broad, narrowing posteriorly, lateral margins sinuate.

Colour. Overall red-brown.

Measurements. All comprise single female, and mean of two males.
Length. Male 2.45 mm. Female 3.07 mm. Maximum width. Male 1.27 mm. Female 1.82 mm.

TYPE SPECIMENS. Holotype female. Unuwhao (North Cape area), forest remnant, P/S sample 218,22.II.1967, K.A.J. Wise (AMNZ). Allotype male and paratype male. Whareana (North Cape area), Taraire leaf-litter, forest remnant, P/S sample 399, 6.XII.1967, K.A.J. Wise (AMNZ).

Modicarventus is closely related to *Neocarventus* U. & M. in that they share some important characters, particularly the posteriorly directed mesothoracic lobe which divides the metathorax into two, and the large pygophore produced into two large lobes posteriorly and a large ventral lobe.

The major distinguishing features between *Modicarventus* and *Neocarventus* U. & M. are summarised below, with *Neocarventus* features bracketed.

1. Antennae. Fourth segment longest, second segment shortest, first and third segments subequal. (First segment longest, second segment shortest, third and fourth segments subequal).

2. Rostral margin glabrous. (Rostral margin obliquely rugose).

3. A distinct posteriorly directed subtriangular sclerite behind collar. (Absent).

4. Mesothoracic median lobe broad, occupying medial third of metanotum. (Mesothoracic median lobe subtriangular, forming a wedge-like division of the metanotum).

5. Metanotal lateral spines absent in male. (Well developed lateral spines in male).

6. Median longitudinal carina of basal tergites short, not extending into anterior half. (Carina extends from anterior to posterior margins of basal tergites).

7. No transverse suture across basal tergites, but subrectangular sclerites in posterolateral angles. (Well defined transverse suture laterally, no sclerites in posterior angles).

8. Sublateral tergal sclerites of segment III separated by median longitudinal suture. (Fused medially).

9. Tergal disc with scent gland openings borne on a single fused plate along the median longitudinal axis. (Median axis laterally fused with tergal patterns).

10. Male VIII segment lobes small, inwardly curved. (Male VIII segment lobes large upwardly curved spines, hook-like).

The species is named after Mr Keith Wise, Entomologist, Auckland Institute and Museum, as a token of my respect for his indefatigable efforts on behalf of New Zealand entomology, and, in appreciation for his encouragement of my work.

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